REPORT

OF THE

Indian Tariff Board

ON THE

STARCH INDUSTRY

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PERSONNEL OF THE BOARD

Sir R. K. SHANMUKHAM CHETTY, K.C.I.E.—President.

Mr. C. C. DESAI, C.I.E., I.C.S.—Member-Secretary.

Dr. NAZIR AHMAD, O.B.E.—Member.

Dr. H. L. DEY, D.Sc. (Lond.)—Member.

Rai Sahib S. C. AGGARWAL, B.A. (Hons.), Dip. Min. Eng. (Leeds), A. I. Min. E. (Eng.), F.G.S. (Lond.)—Deputy Secretary.

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REPORT ON THE STARCH INDUSTRY

Reference to the Board.

1. Early in 1940 Government had announced that industries promoted by their direct encouragement during wartime might feel assured that, if they were conducted on sound business lines, they would be protected against unfair competition from outside by such measures as Government might devise. In accordance with this decision, starch was one of the industries which was given an assurance of protection under Commerce Department Resolution No. 261-T (2)/45, dated August 20, 1944, which stated that—

> " The Government of India have decided to give an assurance to the starch industry in India that it will, by such means as Government may devise, be protected after the war against unfair competition from abroad provided it is established that the industry is and has been conducted on sound business lines."

Relying on this assurance, Messrs. Sukhjit Starch and Chemicals, Ltd., Phagwara, Kapurthala State, applied to the Government of India for protection on May 27, 1945. The case of the industry was referred to the Board for investigation into its claim for assistance or protection by the Government of India Department of Commerce, in their Resolution No. 218-T (55)/45, dated November 3, 1945.

Terms of reference.

2. The terms of reference to the Board as contained in the above mentioned Resolution are as follows :—

> " In the case of each industry the Board will, after such examination as it considers necessary, report whether the industry satisfies the following conditions :—
>
> (1) that it is established and conducted on sound business lines ; and
>
> (2) (*a*) that, having regard to the natural or economic advantages enjoyed by the industry and its actual or probable costs, it is likely within a reasonable time to develop sufficiently to be able to carry on successfully without protection or State assistance ; or
>
> (*b*) that it is an industry to which it is desirable in the national interest to grant protection or assistance and that the probable cost of such protection or assistance to the community is not excessive. Where a claim to protection or assistance is found to be established, i.e., if condition (1) and condition (2) (*a*) or (*b*) are satisfied, the Board will recommend—
>
> (i) whether, at what rate and in respect of what articles, or class or description of articles, a protective duty should be imposed ;
>
> (ii) what additional or alternative measures should be taken to protect or assist the industry ; and
>
> (iii) for what period, not exceeding three years, the tariff or other measures recommended should remain in force.

In making its recommendations the Board will give due weight to the interests of the consumer in the light of the prevailing conditions and also consider how the recommendations affect industries using the articles in respect of which protection is to be granted. Since relief, to be effective, should be afforded without delay, the Board is requested to complete its enquiries with all possible expedition and to submit a report as soon as the investigation of the claim of each industry is concluded ".

Action taken by the Board.

3. On receipt of the case for inquiry from Government, the Board issued a preliminary questionnaire to all the known manufacturers of starch in India, the All-India Starch Manufacturers Association and the Provincial and State Governments requesting them to furnish information regarding the productive capacity and actual production of the factories installed in India, the import of starch from different countries in recent years, the existing import duties on the finished products, etc. In response to this preliminary questionnaire, valuable notes were received from officers of the Central and Provincial Governments which have greatly helped the Board in conducting this inquiry. The preliminary questionnaire, which was principally designed to obtain information regarding the productive capacity and location of the starch and glucose factories in India, was followed up by the issue of a detailed questionnaire purporting to elicit information regarding the import, manufacture, consumption, etc., of starch with a view to ascertaining the measure of protection or assistance required by the industry during the next three years. In addition to the issue of the questionnaires, the Board held several informal discussions with various interests connected with the starch industry. The first discussion took place with Sir John Greaves of Bombay, the then Controller of Mill Stores (Textiles) on the 17th December 1945. The second discussion took place between the Board and Mr. Kasturbhai Lalbhai, President of the All-India Starch Manufacturers' Association on the 15th January 1946, when the Board visited the Anil Starch Factory at Ahmedabad. The third discussion arose out of an enquiry by Government as to whether, in view of the reported imports of starch from abroad at prices below the controlled prices fixed by Government, any interim action was necessary pending the full enquiry by the Board. These informal discussions took place in Bombay on the 7th and 14th September 1946 and a list of the persons who attended these discussions is given in Appendix I. It was revealed in this inquiry that the imports of starch were on a very limited scale and at prices well above the control prices. After considering the relevant data it was decided that there was no urgency in the matter which could therefore stand over till full examination by the Board.

Visits to Factories.

4. The members of the Board paid visits to starch factories as follows :—

1.	Anil Starch Products, Ltd. ..	All members of the Board. ..	January 15, 1946.
2.	Sukhjit Starch & Chemicals, Ltd., Phagwara.	Dr. Nazir Ahmad ..	October 15, 1946.
3.	Renderian Rubber & Chemical Works, Delhi.	Dr. Nazir Ahmad ..	October 20, 1946.
4.	Rampur Maize Products, Ltd. ..	Dr. Nazir Ahmad ..	October 22, 1946.

Dr. Kelkar, Technical Adviser to the Board, visited the Anil Starch Products Ltd., Ahmedabad, on October 7, 1946. The Cost Accounts Officer deputed by the Board made a detailed examination of the cost of manufacture of starch in the following factories :—

1.	Anil Starch Works, Ahmedabad	October 7th and 8th 1946, November 14, 1946.
2.	Sukhjit Starch Factory, Phagwara	October 14 and 15, 1946.
3.	Rampur Maize Products	October 16 and 17, 1946.

Public Inquiry.

5. The public inquiry into starch and glucose was held in Bombay on November 7 and 21, 1946. The list of persons representing the manufacturing, consuming and importing interests of starch who attended this inquiry is given in Appendix II.

History of the Industry.

6. The starch industry in India was planned to be established before the war and several industrialists had begun the work of prospecting, experimenting and consulting experts since 1936. The Bharat Starch & Chemicals, Ltd., Abdullapur and the India Starch Products, Ltd., Kalol, started working their factories in 1938, but these factories found it very difficult to operate successfully in the face of strong competition from imports. The Anil Starch, Ahmedabad, came into existence in 1941, while the Rampur Maize Factory was established in 1942. A complete list of the starch factories as known to us has been compiled, and will be found in appendix III. The war naturally created favourable conditions and the starch industry in its present form came into existence. The total prohibition of import of starch in the year 1942 gave a strong fillip to the industry, and as many as forty-five factories sprang up in different parts of the country. Most of them, however, could only function for a short period, while others experienced difficulties and suffered forced stoppages due to the shortage of the essential raw materials like maize and wheat. As a result, none of the factories has been able to produce starch up to its installed capacity. Owing to the acute famine conditions which prevailed in 1943 and which have more or less continued since then, the Government of India issued the Starch Control Order on the 15th May 1943, (*a*) prohibiting the production of starch from wheat and (*b*) fixing the prices of starch. This was later amended on the 26th February 1944, and the production and the price of starch from maize was also brought under control. As a result of these measures, most of the factories have had to close down, and it is stated that, at the present time, hardly any factory is working, except spasmodically, for want of essential raw materials. This state of affairs must continue until the food position becomes easier and Government is able to allocate adequate quantities of maize to the factories.

Process of manufacture.

7. On receipt at the factory, the maize is cleaned and stored, the storage being either in bags or in silos. If the maize is stored for any length of time, it should be taken out periodically and aired to prevent deterioration. The clean maize delivered to vats where it is steeped in tepid water containing sulphur dioxide. After the maize is properly steeped, the vat is drained and the steeped maize is

conveyed to coarse grinders in which it is crushed in such a manner that the germ, which contains the oil, is loosened out. The kibbled corn from the mills is washed into tanks called degerminators. The germs, being lighter, float up to the top, and are skimmed off. The degerminated maize pulp is pumped from these tanks and ground fine. The crude milk coming from the last stage grinders is pumped into tanks where it is treated with sulphur dioxide. It is then diluted and sieved on silk gauze to separate the fibre or husk which is washed free of starch. The starch milk coming from these sieves flows on to the tables where starch settles down while gluten flows over. The sediment of starch is flushed with the aid of starch milk obtained in the previous process. It is submitted to another refining process, centrifuged and dried. This is known as pearl starch. It is either packed as such or sifted for the production of the powder variety.

Uses.

8. Starch finds numerous uses for industrial and household purposes. It is used in very large quantities by the textile industry for sizing yarn and for finishing cloth, by the paper and jute industries for giving required finishes to their products, and in the manufacture of cosmetics, soaps and pharmaceuticals. It is required in fairly large quantities in making confectionery and baking powders and in the brewing industry. It is also converted into dextrine and glucose which find many industrial uses. In India by far the largest consumer of starch is the cotton textile industry, while the paper and jute industries also use appreciable quantities. It is estimated that the consumption of starch in these industries in India is approximately 90·4 and 6 per cent. respectively of the total. The use of starch for edible purposes is at present rather limited in India but it is likely to increase when the industries for making new food preparations come into existence.

Imports.

9. Until the outbreak of the war, practically all the starch requirements of the country were met from imports. Detailed statistics relating to imports will be found in Appendices IV and V. It may be briefly stated here that the imports of all starch materials for 5 years ending March 1939 together with their values were as follows :—

Quantity in ton

	1934-35	1935-36	1936-37	1937-38	1938-39
Starch (maize)	11,522	11,415	12,584	17,154	16,129
Sago flour	12,646	15,397	15,614	19,065	16,871
Farina	4,468	4,513	4,337	4,401	4,172
Dextrine	1,678	1,545	1,474	1,467	1,080
Total ..	30,314	32,870	34,009	42,087	38,252

Value in Rupees.

		1934-35	1935-36	1936-37	1937-38	1938-39
Starch (maize)	..	17,99,605	17,35,501	18,83,494	28,03,081	28,87,696
Sago flour	..	10,72,372	14,09,149	15.90,476	20,72,893	15,04,482
Farina	..	6,61,785	6,73,077	6,57,401	7,67,832	6,89,179
Dextrine	..	3,05,956	2,94,879	2,87,691	2,99,612	2,22,176
Total	..	38,39,781	41,12,606	24,19,062	59,43,418	53,03,533

A reference to Appendix IV will show that the principal countries from which starch was imported were the Netherlands, Germany, Belgium and the United States of America. Appendix V shows imports as well as their break up under sago, maize starch, etc.

Estimated Indian demand.

10. The import figures give a fairly good indication of the total consumption of starches of different kinds except wheat flour before the war, as there was very little production of these materials during these years in the country. It will be seen that in 1937-38 and 1938-39, the total imports amounted to about 40,000 tons per annum. In addition, a certain quantity of wheat flour was used by the mills but it has been difficult to ascertain this quantity with any degree of exactness. According to one estimate placed before the Board, the total consumption of starchy materials of all kinds including wheat flour immediately before the war amounted to about 80,000 tons which means that nearly 40,000 tons of wheat flour were used by the Indian mills in addition to the imported starches. This estimate, however, was contested by others present at the inquiry who maintained that the consumption of wheat flour did not exceed 10 per cent. of the total consumption of starch. During the war the production of cloth in Indian mills showed an increase, and, therefore, in the normal course of events the consumption of starch by the mills would have increased proportionately. The increased demand for starch, however, was checked to a considerable extent by the Size Control Order which restricted the percentage of size to be used by the mills. If this Order remains in force, it is estimated that the demand by the Indian Cotton mills in the next three years will not exceed 45,000 tons per annum. In such an event, the total demand of starch in India during the next three years is estimated to be 50,000 tons per annum, made up as follows :—

		Tons
Textile Mills (90%)	.. .. ..	45,000
Paper Mills (4%)	.. ..	2,000
Jute Mills (6%)	.. ..	3,000
Total	..	50,000

If, however, the Size Control order is removed or there is a very considerable expansion in the principal starch consuming industries such as textiles, paper, food preparations, etc., it is likely that the consumption of starches of different kinds excluding wheat may increase up to 75,000 or 80,000 tons per annum.

11. It would be interesting to compare the production and consumption of starch in India with that in a highly developed country like the United States of America. It is reported that in the United States of America over a hundred million bushels of corn are converted each year into a million and a half tons of starch. The textile industry alone consumes over 110,000 tons of starch, while the paper industry takes another 89,000 tons. The quantity of starch used for edible purposes is about 110,000 tons per annum, while 40,000 tons per annum are converted into dextrine. Similarly, huge quantities of starch are used in other industries such as cosmetic, explosives, pharmaceuticals, confectionery, laundry, soaps, asbestos, etc., while the balance left over after meeting the domestic requirements provides a valuable export material.

Domestic production.

12. As mentioned earlier there was very little production of starches of any kind in India before the war. The few factories which existed at the time found it extremely difficult to compete with foreign imports. During the war when the foreign supplies were curtailed, several factories sprang up for the manufacture of starch from different starch-bearing materials, especially maize and wheat. Many of these factories were established on a small scale with improvised machinery, but some of them were able to get up-to-date plant and were established on a fairly large scale. The figures for the Indian production of starch during the last 3 years as supplied by the Textile Commissioner are as follows :—

1943	16,973	tons.
1944	24,164	,,
1945	26,298	,,

During these years the difference between the output of Indian starch factories and the total consumption of starch in India was made up by the indigenous production of tapioca starch which rose to about 18,000 tons in 1943 and is still manufactured on a cottage industry scale. Since 1945, the production of the Indian starch factories has shown a sharp fall owing to the scarcity of essential raw materials and the deficit had to be made up partly by imports of maize starch and sago from abroad and partly by tapioca starch. So far as could be ascertained there are at present 41 starch factories of different sizes in India out of which 24 are licensed while the remaining 17 are unlicensed. According to the Textile Commissioner the rated capacity of the 24 licensed factories is 58,000 tons per annum. It is difficult to estimate the capacity of the unlicensed factories as no reliable statistics were available in respect of them, but even if it is assumed that the capacity of the unlicensed factories is about 15,000 tons per annum, it would be seen that the total installed capacity for manufacturing starch from corn in India is 73,000 tons per annum. Thus the installed capacity in the country is more than enough to meet the probable requirements during the next three years, which have been estimated at 50,000 tons per annum. It should, however, be remembered in this connection that the total estimated demand of 50,000 or 75,000 tons per annum includes starches of all kinds including farina, sago and dextrine, which are used in varying quantities by the different mills according to their inclinations and requirements, and if sufficient supplies of these starches are also available in the next few years, the total demand for maize starch would be well within the productive capacity of the Indian starch factories.

Raw materials.

13. The most suitable raw material for the production of starch in India is maize, although during the war, other raw materials such as wheat, bajra and jowar were also tried. In addition, a certain amount of tapioca starch is also produced from tapioca roots, which are found in abundance in the South, especially in Travancore. Assuming that the entire production of 50,000 tons per annum of starch is made from maize, it would require approximately 100,000 tons of maize per annum. The acreage devoted to production of maize and the yield of maize in different provinces and States of India from 1936 to 1941 is given in Appendix VI. It would be seen from this Appendix that the total yield of maize grown over an area of approximately 6½ million acres is just over 2 million tons, giving an average yield of about 0·284 tons or 5·68 cwt. per acre. Thus, the annual requirements of the starch factories amount to 5 per cent. of the total maize production in India. This cannot be regarded as a heavy drain on one of the food crops of India, and in normal times there should be no serious difficulty in sparing this quantity of maize for an industry like starch which is an essential material for the textile industry. It would be interesting in this connection to compare the figures regarding the production, consumption, etc., of maize in India and U. S. A. In the latter country, nearly 76 million tons of maize were raised on an area of over 94 million acres in 1943, giving a yield of 0·803 tons or 16·06 cwts. per acre. The demands of the starch factories required over 2½ million tons representing 3·3 per cent. of the total crop. It would thus be seen that the yield of maize per acre in U. S. A. is nearly three times that in India. In view of the importance of this crop both for food and for industrial purposes, we recommend that the Provincial and State Governments should take early steps to develop and propagate better varieties of maize which should give higher yields per acre. Apart from maize, the other raw materials required for the manufacture of starch are sulphur and some chemicals. These are, however, required in small quantities and are either obtainable in India or can easily be met from imports.

Starch substitutes from non-edible materials.

14. Owing to the acute food position prevailing in the country, a search has been made for non-edible products which may be used as substitutes for starch. Experiments carried out at the Forest Research Institute, Dehra Dun, showed that the pectinous matter contained in tamarind seed has sizing and finishing properties somewhat similar to starch. Owing to the limited quantities of maize and other kinds of starch being available, fairly large quantities of tamarind seed powder have been used by the cotton and jute mills during the last 2 years. Their reports, however, show that this powder was not prepared in a proper manner and did not give entirely satisfactory results. The jute mills were, on the whole, better satisfied than the cotton mills which may partly be due to the fact that the tamarind seed powder leaves a yellowish brown tint on the sized yarn or cloth. Even if this powder is made according to the specifications as laid down by the Forest Research Institute, Dehra Dun, it is not possible to say at present how far it will replace starch, especially in the cotton mills. Experience of certain mills,

however, indicates that tamarind seed powder, properly prepared, can be used by itself or in combination with starches for sizing and finishing processes. A great deal of research work remains to be done before the true position regarding the use of tamarind seed as a sizing agent can be ascertained. The chemical composition of the product has to be worked out as well as methods for modifying or altering its properties. The detailed method for preparing the powder on a factory scale in which the by-products are also utilised has yet got to be fully worked out, after which mill tests should be carried out on the powder so prepared. We recommend that research and developmental work on these lines should be carried out to ascertain the potentialities of this material which is available in large quantities, especially in South India.

Quality of the Indigenous product.

15. It has been stated earlier that some of the starch factories are equipped with up-to-date plants while the others have only improvised machinery. It is only natural that the quality of starch produced in the former factories should be much superior to that in the latter factories. From the evidence placed before the Board, it was clear that the quality of starch produced in the Indian factories equipped with up-to-date plants was in no way inferior to that of the imported materials. It may also be assumed that once the maize supply position becomes easier, and the factories start working again, the force of competition and the need for survival will compel the less efficient factories to improve their quality either by installing new machinery or by adopting better process of manufacture and to bring it up to the mark.

Desirability of allotting maize to starch factory.

16. Most of the starch factories have been shut down wholly or partially for some time past because all the available maize is required for food. While it is incontestable that food requirements should take priority over others, a view to which the industry also subscribes, it would not be desirable to allow this industry to die for want of essential raw materials. It served an extremely useful purpose during the war in helping the textile industry to manufacture garments for the fighting forces. A large amount of capital has been invested in it and it can provide employment for a fairly large number of people. We are, therefore, definitely of the opinion that the Government should find ways and means to allot about 50,000 tons of maize to this industry to enable the factories to work at least up to half of their productive capacity until such time as the food position becomes easy and the factories are able to obtain their full requirements of maize. The supply of even limited quantities of maize as indicated above should enable the factories to keep their technical staff and labour together and prevent the machinery from getting rusty from want of use. There is another important consideration in favour of allotments of maize to these factories. Two of the by-products in the manufacture of starch are cattle feed and fertilizers which will help in increasing the milk supply and food production in the country.

Board's estimate of cost of production.

17. As stated in paragraph 4 of our report, the Cost Accounts Officer deputed by the Board examined in detail the cost of production of starch in three factories, viz., Anil Starch Products, Ahmedabad, Rampur Maize Products, Rampur, and Sukhjit Starch & Chemicals Phagwara (Punjab). The cost data prepared by him were scrutinised by the Board. The cost of manufacture

differed some what from factory to factory, depending upon the efficiency of the plant and process, cost of raw material, fuel, electricity, labour charges, etc. In order to work out a representative cost sheet which would be applicable to the industry as a whole, the Board decided to take the average of the cost of manufacture in the three factories with certain minor adjustments in individual items as giving a fair cross-section for the industry. These adjustments were made as a result of the discussion at the public inquiry. The cost of manufacture of starch in India worked out in this way for the next three years is shown in the table below. It should be mentioned in this connection that this table is based upon a production of 4,500 tons of starch per annum, which is approximately half the productive capacity of the bigger factories, and it is therefore assumed that sufficient maize will be made available to each factory, enabling it to work up to half its installed capacity during the period of food shortage. The larger Indian factories such as Anil Products, Rampur Maize Products, etc., are capable of producing nearly double this quantity of starch provided maize is made available to them. If, during this period, the maize position becomes easy and the factories are able to get their full requirements, their production can be stepped up and the costs of manufacture would automatically come down.

Board's estimate of cost of manufacture of starch in 1947-48-49 in a factory of average efficiency with an average annual output of 4,500 tons of starch.

Item of cost	Cost per ton in rupees	Remarks
1. Materials :—		
1·852 tons of maize at Rs. 220* per ton.	407	*Yield of 54% maize Rs. 190 at market rate. Freight, transport, and handling. Rs. 30 Rs. 220 per ton.
2. Power and fuel :—		
Electricity ..	14	
Coal and other fuel ..	17	This cost would be less were the coal position sufficiently favourable to enable firms to dispense with the necessity of using such fuels as firewood molasses, etc.
3. Labour ..	60	
4. Repairs and maintenance ..	30	
5. Consumable stores ..	50	
6. Establishment ..	20	
7. Depreciation at statutory rates.	25	
8. Other overheads ..	25	

Item of cost		Cost per ton in rupees	Remarks
9. Packing charges	..	22	
10. Selling expenses	..	20	
11. Interest	..	9	4% on working capital (Rs. 10 lakhs).
		699	
Credit for by products	..	50	
Net cost of manufacture	..	649	

or Rs. 32·45 per cwt.

(2) A few remarks are necessary to explain the above table.

(*a*) *Raw Materials.*—The yield of starch has been assumed at 54 per cent. of the weight of maize. The price of maize has been taken at Rs. 190 per ton at the market which is very nearly equal to the prevailing price, while an allowance of Rs. 30 per ton is given for freight, transport and handling charges from the market to the factory. We were informed that the three large markets for maize are (1) Lakhimpur in U. P., (2) Jagraon in the Punjab and (3) Deoghar (Monghyr Dt.) in Bihar. Since we have decided to link up the cost of manufacture of starch with the price of maize, we recommend that if there are wide fluctuations in the price assumed by us, viz., Rs. 190 per ton during the period of protection, the average ruling price of maize in these three markets should be ascertained and an adjustment should be made in the cost of manufacture of starch in a manner which will be explained presently under the head " Fair selling price ".

(*b*) *Power and Fuel.*—Owing to the shortage of coal, many factories in the past were compelled to use other forms of fuel such as firewood, molasses, etc., which are more expensive than coal. If in the next three years, the position regarding the supply of coal to starch factories improves, some reduction should be possible under this head.

(*c*) *Other items.*—So long as the factories work up to only a fraction of their full installed capacity, large reductions in these items are not possible. If, however, the maize position becomes easier and the factories are able to work up to full capacity, some reduction in the incidence of expenditure on these items per ton of manufacture would be possible.

(*d*) *Interest on working capital.*—We have allowed interest at the rate of 4 per cent. on working capital of Rs. 10 lakhs which is based on the average obtained from the published accounts of the three manufacturers and has been related to the total tonnage after considering the reduced output owing to non-availability of maize. It is very nearly equal to the value of the output of 4 months.

(*e*) *Credit for by-products.*—We have allowed a credit of Rs. 50 for by-products per ton of starch produced. This is based upon the actual receipts of two of the three factories. These by-products such as maize oil, cattlefeed, etc., form important and useful by-products, and in America they fetch very good prices. In India, however, people are just beginning to appreciate their value, and it is likely that in future they may fetch higher prices.

Fair selling price.

18. It will be seen from the table in paragraph 17 that the cost of manufacture, excluding profit, of starch produced in an Indian factory of average efficiency comes to Rs. 649 per ton. In order to determine the fair selling price we must add profit based on fixed capital to the cost of production. We have allowed profit at the usual rate of 10 per cent. on fixed capital of Rs. 12 lakhs which on the basis of the output assumed by us, works out at approximately Rs. 27 per ton, making the fair selling price of Rs. 676 per ton or Rs. 33·8 per cwt. As it is unlikely that most of the factories will be working to even half capacity for the best part of the protection period, we have decided to give a little extra margin to the industry and to fix the fair selling price at Rs. 35 per cwt. This fair selling price is based on the assumption that during the period in which the protection recommended by us is in force, the price of maize will remain in the neighbourhood of Rs. 190 per ton. As it takes approximately two tons of maize to manufacture one ton of starch, the price of maize is a very substantial factor in determining the cost of production of starch. If during this period the price of maize goes appreciably above Rs. 190 per ton, it is clear that the starch factories cannot be expected to manufacture and sell starch at Rs. 35 per cwt. We, therefore, recommend that if the average price of maize in the above mentioned markets exceeds Rs. 190 per ton, this factor should be taken into consideration in determining the fair selling price of starch for the scheme of protection. Since it is equally important to protect the interests of the consuming industries, we further recommend that if the price of maize goes below Rs. 190 per ton during the period of protection, a corresponding reduction in the fair selling price of starch should be made. The representatives of the starch industry present at the oral inquiry agreed to this proposal.

Existing rate of duty.

19. The following extract from the first Schedule of the Indian Customs Tariff (26th issue) gives the rates of duty applicable to starches :—

Item No.	Name of Article	Nature of Duty	Std. rate of duty	Preferential rate if the article is the produce or manufacture of		
				The U. K.	A British Colony	Burma
11 (2) ..	Sago Flour ..	....	Free	..	..	..
11 (3) ..	Sago, Tapioca and Tapioca Flour.	Preferential Revenue.	36% *ad valorem.*	..	24% *ad valorem.*	12% *ad valorem.*
11 (4) ..	Starch and Farina ..	Revenue ..	18% *ad valorem.*	..	..	Free.

The bulk of imports of starch falls under item 11 (4) and thus the prevailing duty at present is 18 per cent. *ad valorem,* sago flour being free of customs duty.

C.I.F. Price and landed cost.

20. There have been very small imports of starch recently and it was not therefore, possible to obtain any detailed information regarding the landed cost. According to the information given by a representative of Corn Products, Bombay, in the course of the oral examination on the 27th September 1946, the latest consignment of Canadian starch was landed at Rs. 47 per cwt. inclusive of the duty at 18 per cent. The details of the landed cost are as follows :—

		Per cwt.		
		Rs.	a.	p.
C.I.F. Price $11·48 or	.. ..	38	3	8
Customs duty at 18 per cent.	.. ..	6	14	1
Landing and clearing charges	.. ..	1	14	1
		46	15	10

Inclusive of profit and delivery charges, the present selling price of Pearl starch by Corn Products, f.o.r. Bombay is Rs. 50 per cwt. Further, the Textile Commissioner informed the Board that small consignments of starch were recently received at a landed cost varying from Rs. 38 per cwt. to Rs. 49-4-0 per cwt. We were also told that some starch was imported from Argentine at a landed cost of about Rs. 60 per cwt. The real position is that it is not possible to ascertain with any degree of certainty what the landed cost of imported starch is likely to be. The representative of Corn Products said that there were no chances of any imports coming during the next three months and that the earliest imports from U. S. A. might be expected only after January 1947. He was unable to indicate what the landed cost of the future imports would be, though it was not expected to go below Rs. 35 per cwt. It should be noted that though some figures relating to the landed cost of Canadian, Argentine, and Australian starches have been given, the real competition in future should be expected from U. S. A. which is one of the main producers of starch.

Measure of protection.

21. The present controlled prices of starch are Rs. 45 per cwt. of thin boiling starch, Rs. 38 per cwt. for powdered and Rs. 35 per cwt. for pearl starch. We have taken the fair selling price of pearl starch for the Indian factories at Rs. 35 per cwt. on the basis of maize price of Rs. 190 per ton at the market. At the current c.i.f. prices, the existing revenue duty of 18 per cent. *ad valorem* gives adequate protection to the industry. Since, however, it is possible that these import prices may go down in future and since the industry is, in our opinion, qualified for protection, we recommend that the present revenue duty of 18 per cent. should be converted into a protective *ad valorem* duty at the same rate. If, however, the landed cost of pearl starch imported from any country falls below Rs. 35 per cwt. section 4 (1) of the Tariff Act should be applied and the duty should be so adjusted as to raise the

landed cost of imported pearl starch to Rs. 35 per cwt. As regards the period of protection, the industry represented that there was shortage of maize at present, and, therefore, it should be allowed protection for at least three years so that in 1948 or 1949, the factories might be in a position to work for at least one full year up to their rated capacity before they approach Government again for a review. We accept this view and recommend that the protection should be for the period ending 31st March 1950. In this scheme of protection we have naturally assumed that the price difference between the different types of starches such as pearl starch, powder starch and thin boiling starch will be maintained in regard to future imports. If, however, there is a tendency to circumvent the protection by importing superior varieties of starch below Rs. 35, a new situation will have arisen calling for a re-examination of the case.

Competition from Sago flour.

22. It was mentioned in the course of the oral evidence that large quantities of sago flour are being imported from Singapore and that they are likely to replace starch in the Indian mills and offer severe competition to it even if maize starch is available. From the information received from the Collector of Customs, Bombay, it is clear that there have been heavy imports from June to November 1946. The average c.i.f. price of the sago flour imported during these months comes to about Rs. 40 per cwt. though in previous periods the price went up to as much as Rs. 50 per cwt. From the information given to us, it is evident that the price of sago flour fluctuates violently. We have been told that the latest c.i.f. price of sago flour pink is Rs. 25-8-0 per cwt. and of sago flour white lingga Rs. 33 per cwt. There was a great deal of difference of opinion amongst the witnesses as to the competitive capacity of the pink and white sago flour in relation to maize starch. While the representatives of the industry urged that what really competes with maize starch is pink sago flour, it was contended by other witnesses that this is not so and that the price of the white variety alone should be taken into consideration in determining the competitive capacity of sago flour. The fact, however, is clear that there must be a certain price difference between starch and sago flour. In the pre-war years, the difference between the price of the imported starch and sago flour has varied from 50 to 100 per cent. In the written memorandum the representatives of the starch industry had asked for a price difference of Rs. 10 per cwt. between starch and sago flour. In the course of the oral evidence, however, they wanted that the difference should be only Rs. 5 which should apply in the case of the pink sago flour. Though we realise that sago flour can be a serious competitor to starch if the price difference between the two is considerable we think that a price difference of Rs. 10 between pink sago flour and maize starch and a price difference of Rs. 5 between white sago flour and maize starch may be considered as an adequate margin necessary to eliminate any danger of competition. We, therefore, recommend that, if the price of the imported pink sago flour goes below Rs. 25 or that of white sago flour goes below Rs. 30 per cwt. a duty should be imposed so that the landed cost of either variety is not less than what is indicated above. The rate of duty on both the varieties should be the same.

Burden of protection.

23. It has been stated that 90 per cent. of the starch used in the country is consumed by the textile industry. The data supplied by mill managers show that on the basis of price of pearl starch at Rs. 35 per cwt. the cost of sizing one yard of cloth varies from ·75 to 1·5 pies in different mills and for different qualities of cloth.

This is an extremely small charge in relation to the cost of cloth, and in any case, since we have not recommended any increase in the existing duty on starch the question of any additional burden on any of the consuming industries does not arise.

Eligibility for protection.

24. This industry largely came into existence during the war as a result of the assurance of protection given by government. When foreign imports of starch were not available, it served an extremely useful purpose in supplying the textile industry with one of its essential raw materials. Although most of the starch factories are at present shut down for want of raw materials, yet members of the Board had occasion to visit some which are equipped with uptodate plant. Their account books examined by the Cost Accounts Officer deputed by the Board also show that when the raw materials were available, the industry was being run on sound business lines. The Board is, therefore, satisfied that this industry fulfils the first condition prescribed for eligibility for protection. As regards the second condition, the most important raw material is maize which is grown to the extent of over two million tons per annum in India and in normal times should be available for this industry. India is also one of the largest manufacturers of cotton and jute fabrics and has, therefore, the market for the consumption of starch. The installed capacity in the country is adequate for its needs in the immediate future, and allowing for the differences in the price of raw materials, the cost of production in Indian factories is not unduly high. The quality of starch has been recognised by the consuming industries to be on the whole as good as that of the imported product. In view of all these reasons, the Board is satisfied that the industry also fulfils condition 2 (as prescribed in the terms of reference) and is, therefore, eligible for protection.

Conclusions and recommendations.

25. Our conclusions and recommendations are

summarised as under :—

(1) The total demand for starch in India during the next three years is estimated at 50,000 tons per annum, if the Size Control Order remains in force during that period. The consumption of starch is likely to go up to 75,000 or 80,000 tons per annum, if the Size Control Order is removed, or if there is a considerable expansion of the textile industry. (Paragraph 10).

(2) The rated capacity of the 24 licensed factories is stated to be 58,000 tons per annum. The maximum production so far achieved was 26,298 tons in 1945. (Paragraph 12).

(3) Maize is the principal raw material used in the manufacture of starch. To manufacture 50,000 tons of starch, approximately 100,000 tons of maize are required. The present area under maize cultivation is nearly 6½ million acres and the yield is estimated at a little over 2 million tons. In view of the importance of this crop both for food and for industrial purposes, we recommend that the Provincial and State governments should take early steps to develop and propagate better varieties of maize which should give higher yields per acre. (Paragraph 13).

(4) Owing to the acute food position prevailing in the country, it is suggested that research and developmental work on non-edible products like tamarind seed should be carried out to ascertain the potentialities of these materials which are available in fairly large quantities for use as a sizing agent (Paragraph 14).

(5) The quality of starch produced in the Indian factories equipped with uptodate plants is in no way inferior to that of the imported material. (Paragraph 15).

(6) While it is incontestable that food requirements should take priority over others, it would not be desirable to allow this industry to die for want of essential raw materials. We are, therefore, of the opinion that Government should find ways and means to allot about 50,000 tons of maize to this industry to enable the factories to work at least half of their full productive capacity until such time as the food position becomes easy and the factories are able to obtain their full requirements of maize. (Paragraph 16).

(7) The cost of manufacture has been arrived at on the basis of factories working 50 per cent of their capacity in view of the short supply position of maize which is likely to remain for some time. If the factories work up to their full capacity and do not suffer from the present handicaps of short supply of coal, etc., the manufacturing costs are likely to come down, and this process will be further helped by the better utilisation than at present of waste and by-products. (Paragraph 17).

(8) We have arrived at a fair selling price of Rs. 35 per cwt. or Rs. 700 per ton for starch. This fair selling price is based on the assumption that during the period of protection recommended by us the price of maize will remain in the neighbourhood of Rs. 190 per ton. If, during the period of protection, the price of maize in the principal markets rises above Rs. 190 per ton, this factor should be taken into consideration in determining the fair selling price of starch. Similarly, if the price of maize in the markets goes down below Rs. 190 per ton during this period, the fair selling price of starch should be reduced proportionately. (Paragraph 18).

(9) The representatives of importers were unable to indicate the landed cost of future imports, but expected that it would be above Rs. 35 per cwt. (Paragraph 20).

(10) At the current landed costs, the existing revenue duty of 18 per cent. *ad valorem* gives adequate protection to the industry. Since, however, it is possible that these import prices may go down in the near future and since the industry has, in our opinion, qualified for protection, we recommend that the present revenue duty of 18 per cent. should be converted into a protective *ad valorem* duty at the same rate and should remain in force up to 31st March 1950. We also recommend that subject to the provisions of paragraph 18 of the report, if during the protection period the landed cost of imported pearl starch falls below Rs. 35 per cwt. section 4 (1) of the Tariff Act should be applied and the duty should be adjusted so as to raise the landed cost of imported pearl starch to Rs. 35 per cwt. (Paragraph 21).

(11) We recommend that, if the price of imported pink sago flour goes below Rs. 25 per cwt. or that of white lingga goes below Rs. 30 per cwt. a duty should be imposed so that the landed cost is not less than Rs. 25 in the case of pink or Rs. 30 in the case of the white variety. The duty should be the same in respect of both varieties. (Paragraph 22).

(12) We are satisfied that the industry has fulfilled the conditions laid down as being necessary for protection. (Paragraph 24).

Acknowledgments.

26. The Board wishes to thank Dr. J. N. Ray of the Directorate General of Industries and Supplies and Dr. Sri Krishna of the Forest Research Institute for the valuable help given by them in this inquiry. The Board's thanks are also due to Mr. V. H. Mumford, Cost Accounts Officer, Dr. V. V. Kelkar, the Board's Technical Adviser and Rai Sahib S. C. Aggarwal, Deputy Secretary and Dr. Rama Varma, Assistant Secretary of the Board for the help and assistance rendered by them in the course of this inquiry.

(Signed) SHANMUKHAM CHETTY—PRESIDENT.

(Signed) C. C. DESAI—MEMBER-SECRETARY.

(Signed) NAZIR AHMAD—MEMBER.

(Signed) H. L. DEY—MEMBER.

(Signed) S. C. AGGARWAL—DEPUTY-SECRETARY.

Bombay, 16th January 1947.

APPENDIX I

List of the persons who attended the informal discussion on the 7th and 14th September 1946

7th September 1946 :—

(1) Mr. Dharam Vira, O.B.E., I.C.S., Textile Commissioner, Government of India.

(2) Mr. T. P. Barat, Joint Textile Commissioner, Government of India.

(3) Mr. Neville N. Wadia, Bombay Dyeing and Mfg. Co., Ltd., Bombay.

(4) Sir Frederick Stones, E. D. Sassoon Mills, Bombay.

(5) Mr. E. J. Guetta, Managing Director, Corn Products Co. (India), Ltd., Bombay.

(6) Mr. Frank T. Salzer, Corn Products Co. (India), Ltd., Bombay.

14th September 1946 :—

(1) Mr. M. Dutt

(2) Mr. N. P. Hutheesing } Representing the Starch Manufacturers.

(3) Mr. Vadilal Lallubhai

APPENDIX II

List of persons who attended the oral evidence on 7th and 21st November 1946

7th November 1946 :—

Producers :—

1. Anil Starch Products Ltd., Ahmedabad, and Indian Starch Manufacturers' Association, represented by Mr. Kasturbhai Lalbhai.

2. Rampur Maize Products Ltd., Rampur, represented by Dr. Van Gelder.

3. Gwalior Maize Products, Mandsaur, represented by Mr. M. R. Nadkarni.

4. Sukhjit Starch Chemicals, Ltd., Phagwara, represented by Mr. B. K. Sardana.

Consumers :—

1. Binny & Co., Madras, represented by Mr. A. E. Jones.

2. W. T. Suren & Co., Bombay, represented by Mr. W. T. Suren.

Importers :—

1. Corn Products (India), Ltd., Bombay, represented by Mr. Salzer.

2. Sizing Materials Co., Ltd., Bombay, represented by Mr. Marginson.

Officials and others :—

1. Textile Commissioner, Bombay, represented by Mr. S. W. Shiweshwarkar, O.B.E., I.C.S., Mr. H. D. Doongaji.

2. Food Department, Government of India, New Delhi, represented by Mr. Piplani.

3. Industries and Supplies Department, New Delhi, represented by Dr. J. N. Ray.

4. Forest Research Institute, Dehra Dun, represented by Dr. Shri Krishna.

21st November 1946 :—

Producers :—

1. Anil Starch Products, Ltd., Ahmedabad, and Indian Starch Manufacturers' Association, represented by Mr. Kasturbhai Lalbhai.

2. Rampur Maize Products, Ltd., Rampur, represented by Dr. Van Gelder.

3. Hindustan Colour Chemicals, Kathwada, represented by Mr. R. R. Anada.

APPENDIX II—*contd.*

Consumers :—

1. The Buckingham and Carnatic Mills, Limited, Madras, Managing Agents Messrs. Binny & Co., Madras, represented by Mr. A. E. Jones.

2. The Kohinoor Mills, Naigaum, Dadar, Bombay, represented by Mr. Bracewell.

3. E. D. Sassoon Group of Mills, Bombay, represented by Mr. C. J. Soneji.

4. The Standard Mills, Bombay, represented by Mr. Vishwanath A. Ajagaonkar, Weaving Master.

Importers :—

1. Corn Products (India), Limited, Bombay, represented by Mr. Salzer assisted by Mr. Sardesh Pandey.

2. Sizing Materials Co., Ltd., Bombay, represented by Mr. Scott.

Officials and others :—

Textile Commissioner, Government of India, Bombay, Mr. Dharma Vira, O.B.E., I.C.S., assisted by Mr. S. W. Shiweshwarkar, O.B.E., I.C.S., and Mr. H. D. Doongaji.

APPENDIX III

List of the Factories

	Name of the factory	
1.	Anil Starch Products, Ltd., Ahmedabad	Licensed.
2.	Bharat Starch & Chemicals, Ltd., Abdullapur	,,
3.	Hindustan Colour Chemicals & Mfg. Co., Kathwada	,,
4.	Rampur Maize Products, Ltd., Rampur	,,
5.	U. P. Sales Corporation, Ltd., Seohara (District Bijnor)	,,
6.	U. P. Sales Corporation, Ltd., Hargaon (District Sitapur)	,,
7.	India Starch & Chemicals, Ltd., Kalol	,,
8.	Narang Industries, Ltd., Nawabgunj, U. P.	,,
9.	Sabarvalley Kaolin & Starch Industries, Ltd., Arsodia, (Idar State)	,,
10.	Pearl Products, Ltd., Cawnpore, U. P.	,,
11.	Hyderabad Starch Products, Ltd., Hyderabad (State)	,,
12.	Union Starch & Chemicals, Ltd., Balasinor (State)	,,
13.	Sukhjit Starch & Chemicals, Ltd., Phagwara (Kapurthala State)	,,
14.	Starch Products, Ltd., Cambay	,,
15.	Kashyap Industries Ltd., Lahore	,,
16.	Pioneer Pure Products, Ltd., Shahdara (Lahore)	,,
17.	Eastern Textile & Allied Products, Ltd., Batala (Punjab)	,,
18.	Premier Industries & Finance India, Chheharta (Punjab)	,,
19.	Shirgaonkar Brothers, Dewas Jr. (State)	,,
20.	Faridkot Maize Products, Ltd., Faridkot (Pb.)	,,
21.	Gwalior Maize Products, Ltd., Mandsaur (Gwalior State)	,,
22.	Jaipur Maize Products, Ltd., (Jaipur State)	,,
23.	Patiala Starch & Chemicals, Ltd., Rajputana	,,
24.	Randerian Rubber Chemical Works, Delhi	,,

APPENDIX III—*contd.*

25.	Ravikiran Industries Mfg. Co., Sholapur	Unlicensed.
26.	Bio-Chemical Works, Cawnpore	,,
27	Kotah Starch Products, Ltd., Kotah (State)	,,
28.	Shri Laxmi Starch & Chemicals, Ltd., Billimora (Baroda)	,,
29.	Purnavalley Starch Products, Ltd., Ellichpur, C. P.	,,
30.	Bharat Chemical Industries, Ltd., Billimora	,,
31.	Hari Starch Products, Ujhani (District Badav , U. P.)	,,
32.	Chemical Products Co., Petlad (Baroda State)	,,
33.	Modern Chemical & Starch Mills, Amritsar	,,
34.	Chemista Products Co., Ahmedabad	,,
35.	Starch Products (India), Calcutta	,,
36.	Aurora Chemical Industries, Amritsar	,,
37.	Laxmi Starch Mfg. Co., Amritsar	,,
38.	Manohar Starch Factory, Amritsar	,,
39.	Search Light Starch & Gum Mfg. Co., Anand	,,
40.	Sulphur Products, Baroda	,,
41.	New Cawnpore Flour Mills, Cawnpore	

APPENDIX IV

Statement showing the quantity, value and average value per cwt. of imports of starch into India since 1936-37

		1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
I. Quantity of Imports from :—											
(1) U. K.	Cwt. (000)	1·26	1·53	2·11	2·75	1·28	0·11	....	0·02	Information not available.	
(2) Burma	,,	....	....	15·26	57·74	78·39	111·90	0·02	....	,,	,,
(3) Netherlands	,,	94·06	52·08	28·89	26·33	3·77	....	....	....	,,	,,
(4) Germany	,,	122·25	157·79	73·82	3·20	....	....	....	....	,,	,,
(5) Belgium	,,	15·47	11·54	9·55	1·28	0·02	....	....	....	,,	,,
(6) Yugoslavia	,,	1·50	1·61	3·14	1·57	....	....	....	....	,,	,,
(7) Hungary	,,	0·59	1·18	0·85	1·09	0·20	....	....	....	,,	,,
(8) Japan	,,	0·07	30·98	22·00	12·94	4·93	2·29	....	....	,,	,,
(9) U. S. A.	,,	11·48	76·53	162·95	212·39	199·19	222·89	50·01	2·96	,,	,,
(10) Argentina Republic	,,	....	....	....	....	....	26·00	11·25	3·40	,,	,,
(11) Other Countries	,,	4·99	9·84	4·03	2·80	5·44	0·82	0·07	....	,,	,,
Total Imports	,,	251·16*	343·08	322·60	322·09	93·22	364·01	61·35	6·38	,,	

*Excluding Imports into Burma.

II. Value of Imports from :—

(1) U. K.	Rs. (Lakhs)	0·32	0·32	0·38	0·59	0·31	0·06	....	0·01	Information not available.	
(2) Burma	,,	....	....	1·08	5·86	9·99	16·86	....	....	,,	,,
(3) Netherlands	,,	7·80	5·15	3·97	4·16	0·79	....	....	....	,,	,,
(4) Germany	,,	8·30	12·57	5·00	0·26	....	....	....	....	,,	
(5) Belgium	,,	1·05	0·94	0·64	0·09	0·01	....		....	,,	
(6) Yugoslavia	,,	0·14	0·15	0·32	0·18	....	....	....	....	,,	,,
(7) Hungary	,,	0·06	0·14	0·11	0·16	0·03	....	....	....	,,	,,
(8) Japan	,,	0·01	2·35	1·46	1·82	0·96	0·37	....	....	,,	,,
(9) U. S. A.	,,	0·85	5·80	10·49	17·82	25·05	35·33	9·33	0·57	,,	,,
(10) Argentina	,,	....	....	....	....	....	4·18	3·49	1·12	,,	,,
(11) Other Countries	,,	0·30	0·62	0·43	0·40	0·79	0·23	0·04	....	,,	,,
Total Imports	,,	18·76*	28·04	23·88	31·34	37·93	57·03	12·86	1·70	,,	,,

III. Average Value per cwt. of Imports from :—

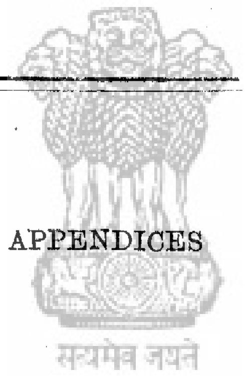
(1) U. K.	Rs. as.	25 7	21 0	18 0	21 5	24 10	51 15	50 11	50 6	Information not available.	
(2) Burma	,,	....	....	7 1	10 2	12 12	15 1	15 13	....	,,	,,
(3) Netherlands	,,	8 5	9 14	16 0	15 13	20 15	....	....	....	,,	,,
(4) Germany	,,	6 12	8 0	6 12	8 4	....	....	....	....	,,	,,
(5) Belgium	,,	6 12	8 2	6 11	7 0	28 0	....	....	....	,,	,,

* Excluding imports into Burma.

APPENDIX IV—*contd.*

		1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
(6) Yugoslavia	Rs. a.	9 1	9 4	10 5	11 5	....	....	....	....	Information not available.	
(7) Hungary	,,	10 3	11 13	12 6	14 8	17 1	....	....	....	,,	,,
(8) Japan	,,	12 9	7 9	6 10	14 0	19 8	16 1	....	....	,,	,,
(9) U. S. A.	,,	7 7	7 9	6 7	8 6	12 9	15 14	18 11	19 5	,,	,,
(10) Argentina Republic	,,	....	....	....	....	....	16 1	31 0	32 14	,,	,,
Total Imports	,,	7 8	8 3	7 6	9 12	12 15	15 11	20 15	26 10	,,	

APPENDICES



APPENDIX V

Statement showing the quantity, value and average value per cwt. of imports of Dextrine into India since 1936-37

		1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
I. Quantity of Imports from :—											
(1) U. K.	Cwt. (000)	0·24	0·39	0·40	0·60	0·48	0·08	....	....	Information not available.	
(2) Burma	,,	....	....	....	0·30	1·12	3·65	....	....	,,	,,
(3) Germany	,,	11·76	6·75	2·30	0·56	....	....	....	....	,,	,,
(4) Netherlands	,,	12·95	9·06	11·65	14·76	3·38	....	....	....	,,	,,
(5) Japan	,,	4·10	12·84	2·10	3·14	1·40	2·27	....	....	,,	,,
(6) U. S. A.	,,	0·04	0·14	5·17	10·24	14·29	21·53	8·79	....	,,	,,
(7) Other Countries	,,	0·39	0·17	....	....	2·12	0·04	....	....	,,	,,
Total Imports	,,	29·28*	29·36	21·61	29·59	22·79	27·57	8·79	——	,,	,,
II. Value of Imports from :—											
(1) U. K.	Rs. (Lakhs)	0·05	0·07	0·07	0·12	0·13	0·02	....	——	Information not available.	
(2) Burma	,,	....	....	....	0·03	0·21	0·82	....	——	,,	,,
(3) Germany	,,	1·10	0·68	0·22	0·06	....	....	....	——	,,	,,
(4) Netherlands	,,	1·30	1·01	1·24	1·68	0·58	....	....	——	,,	,,

(5) Japan	,,	0·38	1·20	0·19	0·62	0·27	0·72	....	....	,,	,,
(6) U. S. A.	,,	0·01	0·02	0·50	1·24	2·24	4·16	1·50	....	,,	,,
(7) Other Countries	,,	0·04	0·02	....	0·01	0·30	0·02	....	....	,,	,,
Total Imports	,,	2·86*	3·00	2·22	3·76	3·73	5·74	1·50	....	,,	,,
III. Average Value per cwt. of Imports from :—											
(1) U. K.	Rs. as.	21 13	19 2	18 11	20 10	26 15	29 1	....	....	Information not available.	
(2) Burma	,,	....	....	....	11 6	18 6	22 7	....	....	,,	,,
(3) Germany	,,	9 6	10 1	9 9	10 1	....	....	....	....	,,	,,
(4) Netherlands	,,	10 1	11 3	10 11	11 6	17 1	....	....	....	,,	,,
(5) Japan	,,	9 4	9 5	8 13	19 14	19 6	31 10	....	....	,,	,,
(6) U. S. A.	,,	12 9	12 2	9 10	12 2	15 10	19 6	17 2	....	,,	,,
Total Imports	,,	9 12	10 3	10 4	12 11	16 6	20 13	17 2	....	,,	,,

*Excluding imports into Burma.

Statement showing the quantity, value and average value per cwt. of Imports of Farina and Potato Flour into India since 1936-37

		1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
I. Quantity of Imports from :—											
(1) U. K.	Cwt. (000)	0·79	2·62	1·15	0·32	0·06	....	....	....	Information not available.	
(2) Germany	„	2·28	0·20	0·40	....	....	....	....	....	„	„
(3) Netherlands	„	82·14	75·20	64·33	63·83	21·39	....	....	....	„	„
(4) Japan	„	0·15	9·96	17·57	15·03	13·47	22·81	....	....	„	„
(5) China	„	....	....	....	....	4·93	0·86	....	....	„	„
(6) Other Countries	„	1·39	0·05	....	0·04	....	....	....	....	„	„
Total Imports	„	86·75	88·03	83·45	79·22	39·84	23·67	....	....	„	„
II. Value of Imports from :—											
(1) U. K.	Rs. (Lakhs)	0·07	0·25	0·10	0·04	0·01	....	....	....	„	„
(2) Germany	„	0·17	0·02	0·03	....	....	....	....	....	„	„
(3) Netherlands	„	6·22	6·70	5·64	6·90	2·77	....	....	....	„	„
(4) Japan	„	0·02	0·70	1·12	2·32	2·82	3·73	....	....	„	„

(5) China	,,	....	....	....	....	0·68	0·16	....	....	,,	,,
(6) Other Countries	,,	0·09	0·01	....	....	....	....	....	....	,,	,,
Total Imports	,,	6·57	7·67	6·89	9·26	6·28	3·89	....	....	,,	,,
III. Average Value per cwt. of Imports from :—											
	Rs. as.										
(1) U. K.		8 11	9 9	8 10	11 11	22 13	....	....	....	Information not available	
(2) Germany	,,	7 6	9 10	8 5	....	....	....	....	....	,,	,,
(3) Netherlands	,,	7 9	8 15	8 12	10 13	12 15	....	....	....	,,	,,
(4) Japan	,,	11 3	7 0	6 6	15 7	20 15	16 6	....	....	,,	,,
(5) China	,,	....	....	....	....	13 13	18 9	....	....	,,	,,
Total Imports	,,	7 9	8 12	8 4	11 11	15 1	16 7	....	....	,,	,,

Statement showing the quantity, value and average value per cwt. of imports of Sago Flour into India since 1936-37

		1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
I. Quantity of Imports from :—											
(1) U. K.	Cwt. (000)	1·71	2·03	....	1·81	0·07	....	....	....	Information not available.	
(2) Burma	,,	....	2·03	0·32	....	....	....	....	....	,,	,,
(3) Straits Settlements	,,	310·48	376·39	336·84	333·97	431·01	572·05	....	....	,,	,,
(4) Federated Malay States.	,,	0·10	0·28	0·27	1·79	3·14	1·44	....	....	,,	,,
(5) Other Countries	,,	....	0·58	....	0·36	0·13	0·56	....	....	,,	,,
Total Imports	,,	311·92*	381·31	337·43	337·93	434·35	574·05	....	....	,,	,,
II. Value of Imports from :—											
(1) U. K.	Rs. (Lakhs)	0·15	0·21	....	0·12	0·01	....	....	....	,,	,,
(2) Burma	,,	....	0·14	0·01	....	....	....	....	....	,,	,,
(3) Straits Settlements	,,	15·74	20·32	15·02	25·40	35·67	54·91	....	....	,,	,,

(4) **Federated** Malay States.	,,	0·01	0·02	0·01	0·16	0·26	0·16	— —	— —	,,	,,
(5) Other Countries	,,	....	0·04	....	0·03	0·01	0·05	....	....	,,	,,
Total Imports	,,	15·89*	20·73	15·04	25·71	35·95	55·12	....	....	,,	,,
III. *Average Value per cwt. of Imports from :—*											
(1) U. K.	Rs. as.	8 15	10 5	....	6 10	12 8	....	....	....	,,	,,
(2) Burma	,,	....	7 1	4 5	13 14	....	....	....	....	,,	,,
(3) Straits Settlements	,,	5 1	5 6	4 7	7 10	8 4	9 10	....	....	,,	,,
(4) Federated Malay States.	,,	5 15	7 2	5 2	8 14	8 6	10 13	....	....	,,	,,
Total Imports	,,	5 1	5 7	4 7	7 10	8 4	9 10	15 9	....	,,	,,

*Excluding Imports into Burma.

Statement showing the quantity and value of imports of Starch, Dextrine and Farina (Total) into India since 1936-37

		1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46
I. Quantity of Imports from :—											
(1) U. K.	Cwts. (Lakhs)	0·04	0·07	0·04	0·05	0·02	....	....	....	Information not available]	
(2) Burma	,,	....	0·02	0·16	0·58	0·80	1·16	....	....	,,	,,
(3) Straits Settlements	,,	3·10	3·76	3·37	3·34	4·31	5·72	....	....	,,	,,
(4) Germany	,,	1·36	1·65	0·77	0·04	....	....	....	....	,,	,,
(5) Netherlands	,,	1·89	1·36	1·05	1·06	0·29	....	....	....	,,	,,
(6) Belgium	,,	0·16	0·12	0·10	0·01	....	....	....	....	,,	,,
(7) Java	,,	0·04	0·07	....	....	....	....	....	....	,,	,,
(8) Japan	,,	0·04	0·54	0·42	0·31	0·20	0·28	....	....	,,	,,
(9) U. S. A.	,,	0·12	0·77	1·68	2·23	2·13	2·44	0·59	0·03	,,	,,
(10) Argentina Republic.	,,	....	....	....	....	....	0·26	0·11	0·03	,,	,,
(11) Other Countries	,,	0·09	0·06	0·06	0·08	0·16	0·03	....	....	,,	,,
Total Imports	,,	6·79*	8·42	7·65	7·69	7·91	9·89	0·70	0·06	0·07	0·12

*Excluding Imports into Burma.

II. Value of Imports from :—

(1) U. K.	Rs. (Lakhs)	0·60	0·86	0·55	0·87	0·46	0·08	....	....	Information not available.	
(2) Burma	,,	....	0·14	1·09	5·89	10·21	17·69	....	....	,,	,,
(3) Straits Settlements	,,	15·74	20·32	15·02	25·40	35·67	54·91	....	....	,,	,,
(4) Germany	,,	9·57	13·27	5·25	0·32	....	....	....	....	,,	,,
(5) Netherlands	,,	15·32	12·86	10·86	12·74	4·14	....	....	....	,,	,,
(6) Belgium	,,	1·66	0·94	0·64	0·09	0·01	....	....	....	,,	,,
(7) Java	,,	0·20	0·33	0·01	....	....	....	....	....	,,	,,
(8) Japan	,,	0·40	4·24	2·76	4·76	4·65	4·86	....	....	,,	,,
(9) U. S. A.	,,	0·86	5·82	10·99	19·06	27·28	39·50	10·83	0·57	,,	,,
(10) Argentina Republic.	,,	....	....	....	....	....	4·18	3·49	1·12	,,	,,
(11) Other Countries	,,	0·44	0·66	0·87	0·94	2·08	0·56	0·04	0·01	,,	,,
Total Imports	,,	44·08*	59·44	48·04	70·07	83·90	121·78	14·36	1·70	1·92	2·33

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*Excluding imports into Burma.

APPENDIX

Area and yield of the Maize crop by Provinces

	Area Acres (000)							
	1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44
British Provinces :—								
Ajmer-Merwara ..	62	52	51	46	61	52	70	60
Bengal ..	73	74	67	68	85	92	122	140
Bihar	1642	1563	1521	1481	1407	1461	1652	1513
Bombay	185	164	173	190	186	181	170	177
Central Provinces and Berar.	154	152	152	155	152	150	150	150
Delhi	3	2	2	2	2	1	2	2
Madras	81	72	64	75	68	66	60	63
North-West Frontier Province.	457	471	486	465	471	469	481	478
Orissa	28	29	28	28	28	28	29	31
Punjab	1078	1103	1110	1143	1144	1188	1301	1327
Sind	3	3	3	3	3	3	3	3
United Provinces ..	1965	1948	2054	2098	2111	1920	2424	2495
Total, British Provinces ..	5731	5623	5711	5754	5718	5611	6464	6439
Indian States :—								
Baroda	..	..	..	..	..	..	3	1
Hyderabad ..	659	651	618	624	534	599	402	429
Khairpur (Sind) ..	..	..	..	...	..	..	(c)	(c)
Mysore	1	2	1	2	1	1	1	1
Total, Indian States (*b*) ..	660	653	619	626	535	600	406	431
Grand Total (*b*)	6391	6276	6330	6380	6253	6211	6870	6870

(*a*) Not available. (*b*) Incomplete. (*c*) Below 500 tons.

Note.—No forecast is prepared for this crop except by the Punjab. The figures for other authorities.

VI

and States during the years 1936-37 to 1943-44

Yield							
Tons (000)							
1936-37	1937-38	1938-39	1939-40	1940-41	1941-42	1942-43	1943-44
12	11	10	7	12	10	9	8
24	24	21	22	26	29	33	48
432	445	352	441	393	456	558	435
54	49	71	47	76	56	34	55
82	85	76	89	78	68	75	63
(c)	1	(d)	(c)	1	(c)	1	1
34	31	27	32	32	27	25	26
214	220	214	230	211	202	202	197
7	6	7	8	6	6	7	7
392	406	384	405	448	463	465	504
1	1	1	1	1	1	1	1
534	730	607	836	811	594	946	932
1836	2009	1770	2118	2095	1912	2356	2277
....	....	....	....	....	..	(a)	(c)
110	108	104	105	101	103	52	52
....	....	....	....	....	..	(c)	(c)
(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
110	108	104	105	101	103	52	52
1946	2117	1874	2223	2196	2015	2408	2329

(d) 500 tons. ( ) Below 500 acres.
tracts are taken from the provincial Season and Crop Reports or specially obtained from local